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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/591,943

10/23/2007

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4900-0025

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7590

07/20/2010

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EXAMINER

SHEN, QUN

ART UNIT

PAPER NUMBER

2617

MAIL DATE

DELIVERY MODE

07/20/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/591,943	Applicant(s) JU ET AL.	
	Examiner QUN SHEN	Art Unit 2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 2 June 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-5,8-13,15-17,20-26 and 29-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-5,8-13,15-17,20-26 and 29-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>6/10/10</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This communication is a Second Action Final on the merits. Claims 1, 3, 4, 8, 9, 11 - 13, 15-16, 20-21, 23-25, 29-30, and 32 are amended. Claims 2, 6-7, 14, 18-19, 27-28 are canceled. Claims 1, 3-5, 8-13, 15-17, 20-26 and 29-32, after amendment, are currently pending and have been considered below.

Priority

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. Korea 10-2004-0016292 and 10-2004-0016293, both filed on March 10, 2004.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in **Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966)**, that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows: (***See MPEP Ch. 2141***)

Determining the scope and contents of the prior art;
Ascertaining the differences between the prior art and the claims in issue;
Resolving the level of ordinary skill in the pertinent art; and
Evaluating evidence of secondary considerations for indicating obviousness or nonobviousness.

As to claim 4, Pardeep as modified discloses the method as claimed in claim 1, wherein the circuit reset message is transmitted/received between the asynchronous mobile switching center and the synchronous mobile switching center when it is necessary to use a trunk line between the asynchronous mobile switching center and the synchronous mobile switching center or in order to reproduce status information of a damaged circuit and reset the damaged circuit (Wallentin: par 0020, note that when handover is initiated from one network to another, either from asynchronous network to synchronous one, or vice versa, the trunk line between MSCs would be used and therefore their operation status needs to be tested. Producing a test status report would have been the natural outcome or test result as commonly practice in the field).

2. Claims 1, 3-5, 8-9, 11, 23-26, 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 2005/0159158 A1, Pardeep et al. (hereinafter Pardeep), in view of US 2006/0234706 A1, Wallentin (hereinafter Wallentin), and further in view of NPL , "Overview of EIA/TIA IS-41", Yu, *Personal, Indoor and Mobile Radio Communications, 1992. Proceedings, PIMRC '92, Third IEEE International Symposium*, pp.220-224, Oct 19-21, 1992 (hereinafter Yu).

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As to claim 1, Pardeep discloses a method of managing for management of a trunk line between a first mobile switching center of a first mobile communication system and a second mobile switching center of a second mobile communication system for handover of a mobile communication terminal capable of communicating with both the first mobile communication system and the second a mobile communication system (Fig 4, cdma2000 radio access network being a first mobile communication system, GSM being a second mobile communication system, with MSCs (308 and 408, note MSC 308 is capable of serving as a cdma2000 MSC, and 408 is capable of serving as a GSM MSC) associated with respective communication system for providing mobile handoff between two networks), the method comprising:

Pardeep does not expressly disclose checking a status of the trunk line between the first mobile switching center and the second mobile switching center by exchanging at least one of trunk line management messages between the first mobile switching center and the second mobile switching center, when the first mobile switching center and the second mobile switching center are in an invoke state for the handover, the trunk line management messages including at least one of a circuit reset message, a circuit interruption release message, or a trunk line test message. However, it is inherent or implied that in Pardeep's system possesses capability of checking the status of the trunk line between the MSCs (see Fig 4) in order for the hybrid MSC to perform properly during the handoff operation (e.g. in an invoke state) between the first (cdma2000) and second (GSM) mobile communication systems.

Nevertheless, Wallentin, in the same or similar endeavor, teaches the message

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exchanges between two network control nodes in the situations where potential communication failure may occur, including the request and response message exchanges, (Wallentin: Figs 1, 3, 4A, par 0020, where the control nodes can be MSCs, BSCs, RNC, etc.). Such message exchanges provide means of checking the status of the trunk line and reset the trunk should the status indicates potential failure.

Furthermore, IS-41 standard has long provisioned and defined MSC O&M operations including circuit reset, block (interrupt) and unblock (interrupt release), and trunk test messages for MSC and network operation and maintenance (Yu: section 4.6, page 222). Yu also teaches inter-system handoff, including handoff measurement, handoff-forward, and handoff-back, as well as communications between two mobile switching centers MSC-A and MSC-B during the handoff processes (Yu: page 221, Sec 4. INTER-SYSTEM HANDOFF, Figs 1-3).

Therefore, consider Pardeep, Wallentin, and Yu's teachings as whole, including MSCs associated with different mobile communication systems in Pardeep and Wallentin, message exchanges in Wallentin as well as Yu's teachings on O&M messages in IS-41B standard, it would have been obvious to one of skill in the art at the time of invention to modify Pardeep's method by incorporating Wallentin's message exchanges, and O&M messages (circuit reset, blocking/unblocking, TrunkTest, TrunkTestDisconnect) of Yu (IS-41) in order to assure reliable inter-system handover between the first and second mobile communication networks.

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As to claim 3, Pardeep as modified discloses the method as claimed in claim 1, wherein the exchanging the a trunk line management messages further comprises receiving a response message transmitted from the first mobile switching center to the second mobile switching center or from the second mobile switching center to the first mobile switching center (Wallentin: Fig 4A: RESET REQUEST MESSAGE and RESET RESPONSE MESSAGE, can be used as part of trunk line management messages).

As to claim 4, Pardeep as modified discloses the method as claimed in claim 1, wherein the trunk line messages comprise at least a circuit reset message the circuit reset message is transmitted from the first mobile switching center to the second mobile switching center or from the second mobile switching center to the first mobile switching center (Yu: 4.6, IS-41 has defined a set of OA&M messages for operating and maintaining the inter-MSC facilities, including Blocking/Unblocking, Reset circuit, Trunktest, Trunktestdisconnect etc.). Such messages can be used when it is necessary to use the trunk line between the first mobile switching center and the second mobile switching center or in order to reproduce status information of a damaged circuit and reset the damaged circuit.

As to claim 5, Pardeep as modified discloses the method as claimed in claim 3 but does not expressly disclose wherein the circuit reset message includes a parameter (InterMSCCircuitID) of the internal switching center circuit ID and the response message includes a parameter (TrunkState) of the status information of the trunk line.

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ANSI-41 defines InterMSCCircuitID as a parameter for inter MSC handover (MSC circuit ID is the identity of the MSC, see par 6, Silva, US 2005/0197122 A1 (one of the references pertinent but not used for rejection). Furthermore, trunk line status information would be the test results delivered by the test procedure – a common practice in running equipment testing, see analysis of claim 4). Therefore it would have been obvious to one of skill in the art to use MSC circuit ID as a parameter (to identify the MSC under test) and provide and determine the trunk status of MSCs under test.

As to claim 8, Pardeep as modified discloses the method as claimed in claim 1, wherein the trunk line is reactivated by the circuit interruption release message when the circuit interruption release message has been transmitted from the first mobile switching center to the second mobile switching center or from the second mobile switching center to the first mobile switching center (feature of unblocking, see Yu: section 4.6, page 222).

As to claim 9, Pardeep as modified discloses the method as claimed in claim 1, wherein the trunk line test message is transmitted from the first mobile switching center to the second mobile switching center or from the second mobile switching center to the first mobile switching center in order to determine if the trunk line between the first mobile switching center and the-second mobile switching center exactly operates without errors (TrunkTest as defined in IS-41B may be apply to inter MSCs testing including MSCs between first and second MSCs, see analysis of claim 1).

As to claim 11, Pardeep as modified discloses the method as claimed in claim 1, wherein the trunk line management messages further comprise a trunk line test release message for completing a test of the trunk line (Yu: section 4.6, page 222, TrunkTestDisconnect, e.g. test release).

As to claim 23, claim 23 is a system claim that encompasses and necessitates method claims 1 and 2. Rejection of claims 1 and 2 are therefore incorporated herein (see analysis and rejections above).

As to claim 24, Pardeep as modified discloses the system as claimed in claim 23, wherein the first or second trunk line management message comprises at least one of a circuit reset message, a circuit interruption message, or a trunk line test message (see analysis of claim 1).

As to claims 25 – 26, 29 - 30, they are rejected with the same reason set forth in claims 4-5, 8-9, respectively (see analysis and rejections above).

3. Claims 12, 15-17, 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 2005/0073977 A1 Vanghi et al. (hereinafter Vanghi), in view of Wallentin and further in view of Yu.

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As to claim 12, Vanghi discloses a method of managing for management of a trunk line between an first mobile switching center of a first communication system and a second mobile switching center of a second mobile communication system for handover of a mobile communication terminal capable of communicating with both the first mobile communication system and the second mobile communication system (Figs 1-2, UMTS being a first mobile communication system and cdma2000 being the second mobile communication system).

Vanghi further discloses the first and second mobile switching centers are being connected to and communicate through interworking interoperability function unit (Fig 2: 116, 130, 126, Fig 7: 712, 714, 732) but does not expressly disclose checking a status of the trunk line between the first mobile switching center and the second mobile switching center by exchanging at least one of trunk line management messages, including a circuit reset message, a circuit interruption message and a trunk line test message.

Wallentin teaches resetting procedure between two network control nodes in the situations where potential communication failure may occur (Wallentin: Figs 1, 3, par 0020, the control nodes may include MSCs).

Furthermore, Yu teaches that IS-41 standard (supported by cdma2000) has long provisioned MSC O&M messages including at least one of circuit reset, block (interrupt) and unblock, and trunk test messages for MSC and network operation and maintenance (Yu: section 4.6, page 222). Yu further teaches

Therefore, consider Vanghi's teachings on the first and second mobile communication systems handover and MSCs of both systems are connected and communicated

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through an IWF unit, Wallentin's teachings in detailed reset message protocol, including resetting request and acknowledgement, and Yu's teachings on O&M messages in IS-41B standard, it would have been obvious to one of skill in the art at the time of invention to modify Vanghi's method by incorporating the resetting messaging of Wallentin, and O&M messages (circuit reset, blocking/unblocking, TrunkTest, TrunkTestDisconnect) of Yu to assure reliable inter-system handover between the first and second mobile communication systems.

As to claim 15, Vanghi as modified discloses the method as claimed in claim 12, wherein the exchanging the trunk line management messages further comprises receiving a response message from the first mobile switching center or the second mobile switching center and through the interworking interoperability function unit (Wallentin: Fig 1: 130 RESET RESPONSE MESSAGE, the control node (120) may include first (or second) MSC to setup the response message of the reset protocol, see analysis of claims 12).

As to claims 16-17 and 20-21, they recite equivalent limitations to claims 4-5, 8-9, respectively, except in the base claim 12, an interworking interoperability function unit is applied between the asynchronous and synchronous mobile switching centers (MSCs) (see analysis and rejection of claim 12). Therefore, claims 16-17, 20-21 are rejected with the same reason set forth in claims 4-5, 8-9 with the motivation provided in claim

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12 (see analysis and motivation of claim 12, and analysis and rejections of claims 4-5, 8-9).

2. (Canceled)

6-7. (Canceled)

14. (Canceled)

18-19. (Canceled)

27-28. (Canceled)

4. Claims 10 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Pardeep, in view of Wallentin, and further in view of Yu and US 5,570,411, Sicher (hereinafter Sicher).

As to claim 10, Pardeep as modified discloses the method as claimed in claim 1 and wherein the trunk line test message includes parameters of an internal switching center circuit ID (InterMSCCircuitID) (see claims 1 and 5) but does not expressly disclose a seizure type (SeizureType). In the same field of endeavor, Sicher teaches Seizure type can be included in the handover operation. Consider the combined teachings, it would have been obvious to one of skill in the art at the time of invention to incorporate Sicher's teachings of seizure type for handover type in Pardeep as modified's method of trunk testing message to take handover priority into consideration.

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Claim 31 is rejected with the same reason set forth in claim 10 (see analysis and rejection above).

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over US 2005/0073977 A1 Vanghi et al. (hereinafter Vanghi), in view of Wallentin and further in view of Yu and Pardeep.

As to claim 13, Vanghi as modified discloses the method as claimed in claim 12, wherein the first mobile switching center and the interworking interoperability function unit exchanges the trunk line management messages and the second mobile switching center and the interworking interoperability function unit exchanges the trunk line management messages in order to check the status of the trunk line between the first mobile switching center and the second mobile switching center (see analysis of claim 12). Vanghi as modified does not expressly disclose the trunk line management messages are based on an ISUP and an MAP protocols, respectively. Pardeep suggests both protocols being used for GSM MSC and MAP protocol for cdma2000 (Pardeep: Fig 1, pars 0005, 0050, SS7 ISUP protocol for GSM MSC, pars 0065-0066, the first network, MAP messages for cdma2000, the second network). In fact, such protocols have been defined in network protocol such as IS-41 or ANSI-41, therefore use of these protocols is implied in Vanghi as modified's method. Nevertheless, consider the combined teachings, it would have been obvious to one of skill in the art at

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the time of invention to incorporate Pardeep's teachings on the message or signaling protocols in Vanghi's method to execute the trunk line management as appropriate.

5. Claim 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Vanghi, in view of Wallentin and further in view of Yu and Sicher.

As to claim 22, Vanghi as modified discloses the method as claimed in claim 12 and wherein the trunk line test message includes parameters of an internal switching center circuit ID (InterMSCCircuitID) (see claims 12 and) but does not expressly disclose a seizure type (SeizureType). In the same field of endeavor, Sicher teaches Seizure type can be included in the handover operation. Consider the combined teachings, it would have been obvious to one of skill in the art at the time of invention to incorporate Sicher's teachings of seizure type for handover type in Vanghi as modified's method of trunk testing message to take handover priority into consideration.

6. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pardeep, in view of Wallentin, and further in view of Yu and Vanghi.

As to claim 32, Pardeep as modified (by Wallentin and Yu) discloses the system as claimed in claim 23 and further discloses the trunk line management message based on an ISUP protocol from the asynchronous mobile switching center and then transmits the trunk line management message based on an MAP protocol to the synchronous mobile

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switching center (Pardeep: Fig 1, pars 0005, 0050, SS7 ISUP protocol for GSM MSC, pars 0065-0066, asynchronous network, MAP messages for cdma2000, synchronous network, see motivation in claim 1), and receives the trunk line management message based on an MAP protocol from the synchronous mobile switching center and then transmits the trunk line management message based on an ISUP protocol to the asynchronous mobile switching center (opposite direction of communication, discussion above applies).

Pardeep as modified does not expressly disclose the management messages are communicated through an interworking interoperability function unit. In the same field of endeavor, Vanghi teaches that the UMTS MSC and cdma2000 MSC may be connected to and communicated through an interworking interoperability function unit (Vanghi: Figs 2, 7, also see analysis of claim 12). Therefore, consider Pardeep as modified and Vanghi's teachings together, it would have been obvious to one of skill in the art at the time of invention to further modify Pardeep as modified's method by incorporating Vanghi's teachings on IWF between two MSCs to facilitate the interoperability and translate the message when communicating the trunk line management message.

As to claim 32, Pardeep as modified (by Wallentin and Yu) discloses the system as claimed in claim 23, further comprising an interworking interoperability function unit which is configured to receive receives the first trunk line management message based on an ISUP protocol from the first mobile switching center and then to transmit transmits the first trunk line management message based on an MAP protocol to the second

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mobile switching center (Pardeep: Fig 1, pars 0005, 0050, SS7 ISUP protocol for GSM MSC, pars 0065-0066, the first mobile switching center, MAP messages for cdma2000, second mobile switching center, see motivation in claim 1), and to receive the second trunk line management message based on an MAP protocol from the second mobile switching center and then to transmit the second trunk line management message based on an ISUP protocol to the first mobile switching center (opposite direction of communication, discussion above applies).

Response to Argument

Applicant's arguments filed on June 2, 2010 have been fully considered but they are not persuasive.

Applicant essentially argues that Pardeep as modified does not disclose checking a status of the trunk line between the first mobile switching center and the second mobile switching center by exchanging trunk line management messages between the first and second MSCs (pages 12-13 of remark). As discussed in the office action, Pardeep's hybrid MSC possesses MSC capabilities for both cdma2000 (the first mobile communication system) and GSM (second mobile communication system). The teachings of Wallentin on exchange messages between two control nodes (including MSCs) and Yu's teachings on OA&M messages can be applied to Pardeep's system during the handover operation (an invoke state). As to the argument of Pardeep as modified does not teach checking a status of the trunk line, it is noted that the message

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exchanges taught by Wallentin and Yu are serving the purpose of checking the status or performing necessary operations and maintenance based on the status of the trunk.

As to the argument that Yu teaches the message exchanges between MSCs but not mention such messages are being used the handover in an invoke state, it has been held, however, that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations *Ex parte Masham 2* USPQ2d 1647 1987).

Claim 23 is a system claim that encompasses method claim 1.

Same response is applied to independent claim 12 and other dependent claims.

Conclusion

Accordingly, **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to QUN SHEN whose telephone number is (571)270-7927. The examiner can normally be reached on 9:30 am - 6:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lewis West can be reached on 571-272-7859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/QUN SHEN/

Examiner, Art Unit 2617

/Lewis G. West/

Supervisory Patent Examiner, Art
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